OKLAHOMA ROTIFERS.

CLARENCE E. TAFT,
University of Oklahoma.

The repeated appearance of rotifers in the algal collections suggested the importance of a taxonomic study of the group within the state. It was found that upon intensive collecting and a study of existent algal collections, the rotifer fauna was abundant and widely distributed. These facts alone indicated the importance of such a group to the student of aquatic biology, or of still more vital interest to the teacher of aquatic biology, who comes into almost daily contact with its members.

As the literature, at present available for the study of rotifers is not abundant, and which is, moreover, widely scattered, the apparent need was for a summary of the common rotifers, including plates, by which a rapid and accurate identification would be possible.

This paper does not attempt to present a complete list of all the rotifers in the state, but it does offer a means for identification of some of the more common forms. Furthermore it is hoped it will stimulate an interest in the study of the group in other regions as well in the State of Oklahoma.

Most of the rotifers included belong to the loricate or semi-loricate groups due to the fact that identifications were made from preserved material, which the circumstances during collection made necessary. The illoricate forms, composing a minor group, such as those from the genera *Philodina*, *Rotifer*, and *Notommata*, are practically impossible to identify when dead, unless especially fixed and preserved. Such a process is rather impracticable in the field. The loricate and semi-loricate forms, due to their more or less hardened outer covering, may be identified without the aid of the delicate internal structures, by using only the shape and sculpturing of the lorica. In most cases the eye, or eyes, remain intact after death, thereby furnishing another valuable aid in identification.

Although the most intensive collecting was carried on in the central part of the state, many collections were secured from other regions. These were sufficient in number to warrant the list as being a representative one for the state.

I wish to express my appreciation to Dr. A. O. Weese, of the Zoology Department of the University of Oklahoma, for the advice and helpful criticism which he has given. I also wish to thank the members of the Botany and Zoology Departments of that University for the collections which they have made. To my wife, Celeste Whaley Taft, I extend my sincerest appreciation for assistance in collecting, identification of species, and proof reading.

Following is a list of the Genera identified. The second name, which in a number of cases follows the first, is the new generic name proposed by Harring in 1913.

1. *Philodina* Ehrenberg.
2. *Rotifer* Schrank.
   Rotaria (Scopoli) Harring, 1913.
3. *Melicerta* Schrank.
   Floscularia (Cuvier) Harring, 1913.
4. *Floscularia* Oken.
   Collotheca (Harring), *g. n.*, 1913.
5. *Apsilus* Metschnikoff.
   Cupelopagis (Forbes) Harring, 1913.
6. *Asplanchna* Gosse.
7. *Pedalion* Hudson.
   Pedalia (Barrois) Harring, 1913.
8. *Triarthra* Ehrenberg.
   Filiana (Bory) Harring, 1913.
9. *Polyarthra* Ehrenberg.
10. *Microcodon* Ehrenberg.
11. *Copeus* Gosse.
12. *Notommata* Gosse (nec Ehr.).
13. *Proales* Gosse.
14. *Furcularia* Ehrenberg.
    Encentrum (Ehrenberg) Harring, 1913.
15. *Eosphora* Ehrenberg.
16. *Anuraea* Gosse (nec Ehr.).
    Keratella (Bory de St. Vincent) Harring, 1913.
17. *Notholca* Gosse.
18. *Eretmia* Gosse.
19. *Pterodina* Ehrenberg.
    Tesludinella (Bory) Harring, 1913.
20. *Brachionus* Ehrenberg.
21. *Noteus* Ehrenberg.
    Platyias (Harring), *g. n.*, 1913.
22. *Stephanops* Ehrenberg.
    Squatinella (Bory) Harring, 1913.
23. *Mastigocerca* Ehrenberg.
24. *Rattulus* Ehrenberg.
    Trichocerca (Lamarck) Harring, 1913.
25. *Coelopus* Gosse.

26. *Salpina* Ehrenberg.
Mytilina (Bory) Harring, 1913.
27. *Diaschiza* Gosse.
28. *Dinocharis* Ehrenberg.
Trichotria (Bory) Harring, 1913.
29. *Scaridium* Ehrenberg.
30. *Euchlanis* Ehrenberg.
31. *Cathypna* Gosse.
Lecane (Nitzsch) Harring, 1913.
32. *Distyla* Eckstein.
Lecane (Nitzsch) Harring, 1913.
33. *Monostyla* Ehrenberg.
34. *Colurus* Ehrenberg.
35. *Metopidia* Ehrenberg.
Lepodella (Bory) Harring, 1913.

An Artificial Key for the Determination of the Subclasses, Orders, Suborders, Families, and Genera, of the Class Rotifera.

Keys to the species have been purposely omitted from this paper in order to simplify identification. Keys not accompanied by diagrams are practically useless, and when present along with the diagrams tend to confuse the investigator, who in the end usually resorts to the drawings for the final identification. As only a few species were found in any one genus, and as these are all figured, it was felt that species keys were not essential.

1. Usually microscopic organisms of greatly varied sizes and outlines. In all cases having a ciliated area at the anterior end which varies extensively throughout the group. The body may be either soft (worm-like), or encased in a more or less distinctly stiffened cuticle (lorica). It usually extends posteriorly to some sort of a stalk or foot. The alimentary tract, when complete, has a pharynx with a pair of chitinous jaws and a dorsal cloacal opening near the foot. The excretory system consists of flame cells. In most cases there is a well developed nervous system with a distinct brain. Males of only a few species are known. When found they are smaller than the females, and are almost always degenerate.
Class Rotifera.

2 (7). Females having two ovaries; no lorica.
Subclass Digononta.

3 (8) (14). Body soft (worm-like); creeping worm-like, or swimming by means of the expanded corona; jaws ramate.
Order Bdelloida.

4. Corona composed of two ciliated discs, projecting from the head on short broad stalks.
Family Philodinadae.

5 (6). Eyes two, located in the neck and over the brain.
Genus Philodina, spp. *roseola* (Fig. 1), *aculeata* (Fig. 2).

6 (5). Eyes two, located in the dorsal probosis.
Genus Rotifer, sp. *macrurus* (Fig. 3).

7 (2). Females having one ovary; with or without a definite lorica.
Subclass Monogononta.

8 (3) (14). Forms usually attached by means of a cup or disc at the end of the foot; generally tube builders; in free swimming forms the tube is transparent and is carried about with the organism.
Order Rhizota.

9 (11). Individual or colonial.....10

10. Corona not produced into greatly elongated lobes; lobes four, edged by groups of strong cilia which are unequal in length.
Family Melicertadae, Genus Melicerta, sp. *ringens* (Figs. 4 and 5).

11 (9). Never colonial.....12

12 (13). Corona usually produced into elongated lobes of varying number, lobes edged by long radiating setae.
Family Flosculariadae, Genus Floscularia, spp. *campanulata* (Fig. 6, *sp.* (Fig. 7).

13 (12). Corona never lobed or produced, but composed of a large membraneous sac; foot a flat disc.
Family Apsilidae, Genus Apsilus, sp. *bucinedax* (Fig. 8).

14 (3) (8). Forms not permanently attached; never colonial, and without tubes; jaws never ramate.
Order Ploima.

15 (35). Illoricate forms, not having the body cuticle hardened to form a shell.
Suborder Illoricata.

16 (23). No foot present.....17

17 (18). Body large, clear, no appendages; jaws incudate; viviparous; one eye.
Family Asphanchnadae, Genus Asplanchna, sp. *Brightwellii* (Fig. 9).

18 (17). Body varying in size, bearing movable spines, blades, or branching appendages.
Family Pedalionadae.

19 (20). Appendages branched, six in number; two eyes.
Genus Pedalion, sp. *mirum* (Fig. 11).

20 (19). Appendages not branched.
Family Triarthradae.

21 (22). Appendages three, very long, one ventral, and two lateral, ventral shorter than the lateral.
Genus Triarthra, sp. *longiseta* (Fig. 10).

22 (21). Appendages twelve, blade-shaped, with serrate margins, arranged in four groups of three each; one eye.
Genus Polyarthra, sp. *platyptera* (Fig. 12).

23 (16). Foot present.....24

24 (25). Foot ending in one toe; mouth located in the center of a coronal ring of strong cilia; one eye.
Family Microcodontidae, Genus Microcodon, sp. *clavus* (Fig. 13).

25 (24). Foot ending in two toes; no body appendages; corona a densely ciliated oblique area without prominences; some forms with two lateral, ciliated, retractile auricles.
Family Notommatadae.

26 (33). Organisms with one eye.....27

27 (32). Eye not located in the extreme anterior end of the body, but in the neck and attached to the brain.....28

28 (29). Body large, not crenulate; corona usually extending onto a large, movable, ciliated "lip;" body projecting beyond the foot in a sac-like tail; toes large.
Genus Copeus, sp. *labiatus* (Fig. 14).

29 (28). Body small to medium size.....30

30 (31). Auricles present; toes small; body often ending in a large tail.
Genus Notommata, sp. *aurita* (Fig. 15).

31 (30). Auricles never present; corona often an oblique ciliated surface, or even extending to the ventral surface; body small.
Genus Proales, sp. *petromyzon* (Fig. 16).

32 (27). Eye nearly always at the extreme anterior end of the body; body cylindrical, conical in front; two toes, large and conspicuous.
Genus Furcularia, sp. *forficula* (Figs. 17 and 18).

33 (26). Organisms with three eyes.....34

34. One eye larger than the other two, and located posteriorly from them.
Genus Eosphora, sp. *digitata* (Fig. 19).

35 (15). Loicate forms, having the body cuticle hardened to form a shell.
Suborder Loricata.

36 (42). Foot absent.....37

37. Lorica usually six-toothed in front, with or without spines behind, both ends open.
Family Anuraeadae.

38 (41). Lorica oblong, or elongated oblong, dorsal surface convex, ventral surface plane.....39

39 (40). Dorsal surface marked off into polygonal areas.
Genus Anuraea, spp. *aculeata* (Fig. 20), *serrulatus* (Fig. 21), *cochlearis*, var. *macrocantha* (Fig. 23).

40 (39). Dorsal surface without definite areas, but having longitudinal striations.
Genus Notholca, sp. *acuminata* (Fig. 22).

41 (38). Lorica sac-like; the anterior end open, narrower than the closed posterior end, serrate; posterior end with five or six lateral and terminal, long, sharp spines; surface of lorica divided into diamond-shaped areas.
Genus Eretmia, sp. *cubeutes* (Fig. 25).

42 (36). Foot present.....43

43 (46). Foot transversely wrinkled, retractile.....44

44 (45). Foot ending in a ciliated cup; lorica thin, strongly flattened dorso-ventrally; corona a ciliary wreath of two lateral semi-circles; two eyes.
Family Pterodinadae, Genus Pterodina, sp. *patina* (Fig. 24).

45 (44). Foot ending in two small toes; lorica with dorsal, and sometimes ventral anterior spines; posterior spines may be present; lorica strongly convex above, flattened or slightly convex below. (In one species of the following genus, *militaris*, the foot is not transversely wrinkled, but is jointed.)
Family Brachionidae, Genus Brachionus, spp. *pala* (Fig. 27), *sp.* (Fig. 26), *rubens** (Fig. 28), *militaris* (Fig. 30), *angularis* var. *caudatus* (Fig. 29), *Mulleri* (Fig. 31).

46 (43). Foot not transversely wrinkled, not retractile.....47

47 (48). Lorica flattened; both anterior and posterior spines present; no eyes.
Genus Noteus, sp. *quadricornis* (Fig. 32).

48 (47). Lorica cylindrical, covering both dorsal and ventral surfaces; head covered by a broad almost circular, non-movable plate.
Genus Stephanops,† spp. *muticus* (Fig. 33), *sp.* (Fig. 35).

49 (57). Foot very short, with one, two, or more slender toes....50

50 (54). Lorica enclosed entirely around the body, ends open, cylindrical, fusiform, or ovate, usually asymmetrical; one eye.
Family Rattulidae.

---

*Rousselet, Journ. Quekett Micros. Club, 1907, claims the specimen of Hudson and Gosse to be wrongly described and identified.

†The genus Stephanops is a very difficult genus to classify. It probably belongs more nearly in the Family Dinocharidae than in the Brachionidae, but because of several varying characteristics it seems to be more easily keyed under the latter. If the user of this key will kindly remember that it is purely an artificial one, it should cause no grave concern.

51(52)(53). Toes single, long and straight, sometimes with other short accessory toes.
Genus Mastigocerca, spp. *capucina* (Fig. 34), *macera* (Fig. 38), *rattus* (Fig. 37), *sp.* (Fig. 36).

52(51)(53). Toes two, equal, bristle-like, having a length of half, or less than half that of the body.
Genus Rattulus, spp. *tigris* (Fig. 39), *cylindricus* (Fig. 40).

53(51)(52). Toes two, unequal, bristle-like, the shorter being more than half the length of the longer; accessory toes may be present.
Genus Coelopus, sp. *tenuoir* (Fig. 41).

54 (50). Lorica not closed on a line down the middle of the dorsal surface, but having the two sides connected by a membrane; toes blade-shaped.
Family Salpinadae.

55 (56). Lorica a well developed box-like structure having the ends open, and with a distinct median dorsal cleft; both anterior and posterior ends with spines; one eye.
Genus Salpina, spp. *spinigera* (Fig. 42), *eustala* (Fig. 43).

56 (55). Lorica not well developed, median dorsal cleft indistinct, no spines; one eye.
Genus Diaschiza, spp. *hoodii* (Fig. 44), *semiaperta* (Fig. 45), *sp.* (Figs. 46 and 47).

57 (49). Foot long, usually of several joints.....58

58 (61). Lorica vase-shaped, entire; head with a chitinous cap.
Family Dinocharidae.

59 (60). Lorica thickened, faceted roughened; no spines; foot with two dorsal spines, foot and toes about as long or slightly longer than the body; one eye.
Genus Dinocharis, spp. *pocillum* (Fig. 48), *tetractis* (Fig. 49).

60 (59). Lorica thin, transparent, smooth; toes, foot, and body about the same length; eye on the mastax.
Genus Scaridium, sp. *longicaudum* (Fig. 50).

61 (58). Lorica not vase-shaped, but ranging from subcircular, circular, subovate, ovate, to elliptical in outline.....62

62 (69). Lorica composed of two plates, located dorsally and ventrally.....63

63 (64). Plates dissimilar, the dorsal one larger and strongly convex; body ending posteriorly in a jointed foot having two rather large blade-shaped toes.
Family Euchlanidae, Genus Euchlanis, spp. *deflexa* (Fig. 51), *uniseta* (Fig. 53), *macrura* (Fig. 52).

64 (63). Plates more nearly alike, separated by a deep lateral furrow having a flexible membrane; the body ending posteriorly in one or two rather large, rod-like toes; the foot is inconspicuous.
Family Cathypnadae.

65 (68). Two toes.....66

66 (67). Lorica ovate, oval, to subcircular; lateral cleft deep.
Genus Cathypna, spp. *luna* (Fig. 54), *leontina* (Fig. 55).

67 (66). Lorica elongate-ovate, slightly extended behind, lateral cleft indistinct.
Genus Distyla, spp. *ohioensis* (Fig. 56), *gissensis* (Fig. 57), *sp.* (Fig. 58).

68 (65). One toe.
Genus Monostyla, spp. *quadridentata* (Fig. 59), *lunaris* (Fig. 60), *Bulla* (Fig. 61), *sp.* (Fig. 62).

69 (62). Lorica composed of a single plate, which may be slightly compressed laterally, or dorso-ventrally flattened; the head is covered by an over-hanging chitinous shield.
Family Coluridae.

70 (71). Lorica slightly compressed laterally, arched dorsally, open at the ends, sometimes open ventrally.
Genus Colurus, spp. *grallator* (Fig. 63), *bicuspidatus* (Fig. 64).

71 (70). Lorica not laterally compressed, the surface with definite sculptured areas, and with a mid-dorsal and a mid-ventral ridge extending backward from the anterior end about to the mid-point of the body.
Genus Metopidia, spp. *Ehrenbergii* (Figs. 65 and 66), *oxysternon* (Figs. 67 and 68), *solidus* (Fig. 69).

A list of the species figured in this paper follows, along with their habitat and general distribution in the state. As previously stated, many of them bear two names, due to the fact that Harring in 1913 changed the generic names of a number of forms, and gave in defense of this change the rule of priority of nomenclature. Because most of the literature available describes the species under the old name it was thought best to include both names in the present paper.

1. *Philodina roseola* Ehrenberg.....Fig. 1
Cosmopolitan in locality and habitat.
Length, .31 mm.

2. *Philodina aculeata* Ehrenberg.....Fig. 2
Cosmopolitan in locality and habitat.
Length, .66 mm.

3. *Rotifer macrurus* Schrank.....Fig. 3
Rotaria macrurus (Schrank) Harring, 1913.
Shawnee Lake; quiet, weedy ponds.
Length, .3 mm.

4. *Melicerta ringens* Schrank.....Figs. 4, 5
Floscularia ringens (Schrank) Harring, 1913.
Shawnee Lake; quiet, weedy ponds.
Length, .64 mm.

5. *Floscularia companulata* Dobie.....Fig. 6
Collotheca companulata (Dobie) Harring, *g. n.* 1913.
Horseshoe Lake; stagnating pond.
Length, .2 mm.

6. *Floscularia sp.*.....Fig. 7
Collotheca sp. Harring, *g. n.* 1913.
Canadian River Oxbow; quiet, muddy water.
Length, .49 mm.

7. *Apsilus bucinedax* Forbes.....Fig. 8
Cupelopagis bucinedax (Forbes) Harring, 1913.
Indian Springs; clear, running water.
Length, 1.77 mm.

8. *Asplanchna brightwellii* Gosse.....Fig. 9
Lake Overholser; plankton.
Length, 1 mm.

9. *Triarthra longiseta* Ehrenberg.....Fig. 10
Filinia longiseta (Ehrenberg) Harring, 1913.
Lake Overholser; plankton.
Length, .9 mm.

10. *Pedalion mirum* Hudson.....Fig. 11
Pedalia mirum (Hudson) Harring, 1913.
Lake Overholser; plankton.
Length, .21 mm.

11. *Polyarthra platyptera* Ehrenberg.....Fig. 12
Lake Overholser; plankton.
Length, .15 mm.

12. *Microcodon clavus* Ehrenberg.....Fig. 13
Shawnee Lake; quiet, weedy ponds.
Length, .25 mm.

13. *Copeus labiatus* Gosse.....Fig. 14
Indian Springs; clear, quiet water.
Length, .9 mm.

14. *Notommata aurita* Ehrenberg.....Fig. 15
Indian Springs; clear, quiet water.
Length, .27 mm.

15. *Proales petromyzon* Ehrenberg.....Fig. 16
Indian Springs; clear, running water.
Length, .15 mm.

16. *Furcularia forficula* Ehrenberg.....Figs. 17, 18
Encentrum forficula (Ehrenberg) Harring, 1913.
Indian Springs; clear, quiet water.
Length, .15 mm.

17. *Eosphora digitata* Ehrenberg.....Fig. 19
Horseshoe Lake; weedy, semi-stagnant water.
Length, .75 mm.

18. *Anuraea aculeata* Ehrenberg.....Fig. 20
Keratella aculeata (Ehrenberg) Harring, 1913.
Lake Overholser; plankton.
Length, .18 mm.

19. *Anuraea serrulatus* Ehrenberg.....Fig. 21
Keratella serrulatus (Ehrenberg) Harring, 1913.
Meeker; grass grown cattle tank.
Length, .11 mm.

20. *Anuraea cochlearis* Gosse var. *macrocantha* Gosse.....Fig. 23
Keratella cochlearis (Gosse) var. *macrocantha* (Gosse) Harring, 1913.
Horseshoe Lake; quiet, weedy water.
Length, .13 mm.

21. *Notholca acuminata* Ehrenberg.....Fig. 22
Edmond; clear, running water.
Length, .27 mm.

22. *Pterodina patina* Ehrenberg.....Fig. 24
Tesludinella patina (Ehrenberg) Harring, 1913.
Arbuckle Mts., Canadian River Ox-bow, Shawnee Lake; cosmopolitan.
Length, .17 mm.

23. *Eretmia cubeutes* Gosse.....Fig. 25
Indian Springs; clear, quiet water.
Length, .06 mm.

24. *Brachionus* sp.....Fig. 26
Lake Overholser; plankton.
Length, .3 mm.

25. *Brachionus pala* Ehrenberg.....Fig. 27
Horseshoe Lake; plankton.
Length, .32 mm.

26. *Brachionus rubens* Ehrenberg.....Fig. 28
Canadian River Ox-bow; muddy, standing water.
Length, .24 mm.

27. *Brachionus angularis* Gosse var. *caudatus* Dad.....Fig. 29
Lake Overholser; plankton.
Length, .25 mm.

28. *Brachionus militaris* Ehrenberg.....Fig. 30
Ten Mile Flats; weedy, stagnant pond.
Length, .18 mm.

29. *Brachionus Mulleri* Ehrenberg.....Fig. 31
Great Salt Plains; very brackish water.
Length, .24 mm.

30. *Noteus quadracornis* Ehrenberg.....Fig. 32
Platyias quadracornis (Ehrenberg) Harring, 1913.
Wichita Mts.; weedy, standing pond.
Length, .26 mm.

31. *Stephanops muticus* Ehrenberg.....Fig. 33
Squatinella muticus (Ehrenberg) Harring, 1913.
Shawnee Lake; weedy, standing pond.
Length, .26 mm.

32. *Stephanops sp.*.....Fig. 35
Squatinella sp. Harring, 1913.
Horseshoe Lake; stagnant water.
Length, .21 mm.

33. *Mastigocerca capucina* Wierz. and Zach.....Fig. 34
Horseshoe Lake; plankton.
Length, .12 mm.

34. *Mastigocerca sp.*.....Fig. 36
Shawnee Lake; quiet, weedy water.
Length, .2 mm.

35. *Mastigocerca rattus* Ehrenberg.....Fig. 37
Indian Springs; clear, quiet water.
Length, .34 mm.

36. *Mastigocerca macera* Gosse.....Fig. 38
Indian Springs; quiet, clear water.
Length, .2 mm.

37. *Rattulus tigris* Muller.....Fig. 39
Trichocerca tigris (Muller) Harring, 1913.
Indian Springs; quiet, clear water.
Length, .19 mm.

38. *Rattulus cylindricus* Imhof.....Fig. 40
Trichocerca cylindricus (Imhof) Harring, 1913.
Indian Springs; Horseshoe Lake; quiet, clear water.
Length, .28 mm.

39. *Coelopus tenuoir* Gosse.....Fig. 41
Indian Springs; quiet, clear water.
Length, .28 mm.

40. *Salpina spinigera* Ehrenberg.....Fig. 42
Mytilina spinigera (Ehrenberg) Harring, 1913.
Indian Springs; quiet, clear water.
Length, .23 mm.

41. *Salpina eustala* Gosse.....Fig. 43
Mytilina eustala (Gosse) Harring, 1913.
Indian Springs; quiet, clear water.
Length, .32 mm.

42. *Diaschiza hoodi* Gosse.....Fig. 44
Indian Springs; Horseshoe Lake; stagnant water.
Length, .23 mm.

43. *Diaschiza semiaperta* Gosse.....Fig. 45
Indian Springs; stagnant water.
Length, .27 mm.

44. *Diaschiza sp*.....Figs. 46, 47
Shawnee Lake; weedy ponds.
Length, .14 mm.

45. *Dinocharis pocillum* Ehrenberg.....Fig. 48
Trichotria pocillum (Ehrenberg) Harring, 1913.
Indian Springs; clear, standing pond.
Length, .32 mm.

46. *Dinocharis tetractis* Ehrenberg.....Fig. 49
Trichotria tetractis (Ehrenberg) Harring, 1913.
Indian Springs; quiet, clear water.
Length, .33 mm.

47. *Scaridium longicaudum* Ehrenberg.....Fig. 50
Indian Springs; Horseshoe Lake; quiet, clear water.
Length, .39 mm.

48. *Euchlanis deflexa* Gosse.....Fig. 51
Ten Mile Flats; stagnant pond.
Length, .29 mm.

49. *Euchlanis macrura* Ehrenberg.....Fig. 52
Indian Springs; quiet, clear pool.
Length, .27 mm.

50. *Euchlanis uniseta* Leydig.....Fig. 53
Indian Springs; quiet, clear pool.
Length, 1.45 mm.

51. *Cathypna luna* Ehrenberg.....Fig. 54
Lecane luna (Ehrenberg) Harring, 1913.
Indian Springs; quiet, clear water.
Length, .19 mm.

52. *Cathypna leontina* Turner.....Fig. 55
Lecane leontina (Turner) Harring, 1913.
Ten Mile Flats; stagnant pool.
Length, .36 mm.

53. *Distyla ohioensis* Herrick.....Fig. 56
Lecane ohioensis (Herrick) Harring, 1913.
Wichita Mts.; rock pools.
Length, .1 mm.

54. *Distyla gissensis* Eckstein.....Fig. 57
Lecane gissensis (Eckstein) Harring, 1913.
Horseshoe Lake; quiet, clear pool.
Length, .09 mm.

55. *Distyla sp*.....Fig. 58
Lecane sp. Harring, 1913.
Ten Mile Flats; stagnant pond.
Length, .13 mm.

56. *Monostyla quadridentata* Ehrenberg.....Fig. 59
Horseshoe Lake; Ten Mile Flats; stagnant water.
Length, .28 mm.

57. *Monostyla lunaris* Ehrenberg.....Fig. 60
Horseshoe Lake; quiet, clear water.
Length, .12 mm.

58. *Monostyla bulla* Gosse.....Fig. 61
Horseshoe Lake; stagnant water.
Length, .25 mm.

59. *Monostyla sp*.....Fig. 62
Indian Springs; quiet, clear water.
Length, .13 mm.

60. *Colurus grallator* Gosse.....Fig. 63
Indian Springs, Horseshoe Lake; clear, standing water.
Length, .12 mm.

61. *Colurus bicuspidatus* Ehrenberg.....Fig. 64
Shawnee Lake; quiet, weedy pond.
Length, .13 mm.

62. *Metopidia ehrenbergii* Perty.....Figs. 65, 66
Lepodella ehrenbergii (Perty) Harring, 1913.
Horseshoe Lake; quiet, weedy pond.
Length, .14 mm.

63. *Metopidia oxysternon* Gosse.....Figs. 67, 68
Lepodella oxysternon (Gosse) Harring, 1913.
Shawnee Lake, Horseshoe Lake, Indian Springs; weedy, standing ponds and clear pools.
Length, .11 mm.

64. *Metopidia solidus* Gosse.....Fig. 69
Lepodella solidus (Gosse) Harring, 1913.
Indian Springs, Horseshoe Lake, Wichita Mts.; cosmopolitan.
Length, .13 mm.

LITERATURE CITED.

1. **Gosse, P. H.** 1887. Twenty-four New Species of Rotifera. Journ. Roy. Mic. Soc., pp. 1–7.
1887. Twelve New Species of Rotifera. Jour. Roy. Mic. Soc., pp. 361–367.
2. **Herrick, C. L.** 1895. Notes on American Rotifers. Bull. of the Scientific Lab. of Denison University. V., pp. 44–62.
3. **Hudson, C. T., and Gosse, P. H.** 1889. The Rotifera or Wheel Animalcules. 2 vol. London.
4. **Jennings, H. S.** 1894. The Rotatoria of the Great Lakes and some of the Inland Lakes of Michigan. Bull. Mich. Comm., No. 3, pp. 361–367.
1899. Rotatoria of the United States. U. S. Fish Comm. Bull., pp. 67–104.
1901. Synopsis of North American Invertebrates. XVII. The Rotatoria. Am. Nat., 35: 725–777.
5. **Murray, J.** 1913. Notes on the Family Cathypnidae. Journ. Roy. Mic. Soc., pp. 341–362, 451–461, 545–564.
6. **Rousselet, C. F.** 1907. New Rotifera. Journ. Quekett Mic. Club, pp. 147–154.
1916. Fifth List of New Rotifers since 1889. Jour. Roy. Mic. Soc., pp. 19–28.
7. **Ward, H. B., Whipple, G. C.** 1918. Fresh-water Biology, pp. 553–620.

EXPLANATION OF PLATES.

PLATE I.

1. *Philodina roseola* Ehr. ... × 125
2. *Philodina aculeata* Ehr. ... × 63
3. *Rotifer macrurus* Schrank ... × 125
4. *Melicerta ringens* Schrank, head ... × 100
5. Same, head projecting from tube ... × 33
6. *Floscularia companulata* Dobie ... × 167
7. *Floscularia* sp. ... × 100
8. *Apsilus bucinedax* Forbes ... × 100
9. *Asplanchna Brightwellii* Gosse ... × 100
10. *Triarthra longiseta* Ehr. ... × 167
11. *Pedalion mirum* Hudson ... × 125
12. *Polyarthra platyptera* Ehr. ... × 100

PLATE II.

13. *Microcodon clavus* Ehr. ... × 100
14. *Copeus labiatus* Gosse ... × 33
15. *Notommata aurita* Ehr. (from Ward and Whipple) after Weber ... × 100
16. *Proales petromyzon* Ehr. ... × 167
17. *Furcularia forficula* Ehr. ... × 167
18. Same, toes greatly enlarged.
19. *Eosphora digitata* Ehr. ... × 125
20. *Anuraea aculeata* Ehr. ... × 125
21. *Anuraea serrulatus* Ehr. ... × 167
22. *Notholca acuminata* Ehr. ... × 125
23. *Anuraea cochlearis* var. *macrocantha* Gosse ... × 167
24. *Pterodina patina* Ehr. ... × 125
25. *Eretmia cubeutes* Gosse ... × 167
26. *Brachionus* sp. ... × 125
27. *Brachionus pala* Ehr. ... × 125

PLATE III.

28. *Brachionus rubens* Ehr. ... × 125
29. *Brachionus angularis* var. *caudatus* Dad. ... × 125
30. *Brachionus militaris* Ehr. ... × 125
31. *Brachionus Mulleri* Ehr. ... × 125
32. *Noteus quadracornis* Ehr. ... × 125
33. *Stephanops muticus* Ehr. ... × 167
34. *Mastigocerca capucina* Wierz. and Zach. ... × 167
35. *Stephanops* sp. ... × 167
36. *Mastigocerca* sp. ... × 167
37. *Mastigocerca rattus* Ehr. ... × 125
38. *Mastigocerca macera* Gosse ... × 167
39. *Rattulus tigris* Muller ... × 167
40. *Rattulus cylindricus* Imhof ... × 167

PLATE IV.

41. *Coelopus tenuoir* Gosse ... × 167
42. *Salpina spinigera* Ehr. ... × 125
43. *Salpina eustala* Gosse ... × 100
44. *Diaschiza hoodi* Gosse ... × 125
45. *Diaschiza semiperta* Gosse ... × 125
46. *Diaschiza* sp., side view ... × 167
47. Same, dorsal view ... × 167
48. *Dinocharis pocillum* Ehr. ... × 125
49. *Dinocharis tetractis* Ehr. (from Hudson and Gosse) ... × 125
50. *Scaridium longicaudum* Ehr. ... × 125
51. *Euchlanis deflexa* Gosse ... × 125
52. *Euchlanis macrura* Ehr. (from Ward and Whipple) after Weber ... × 125

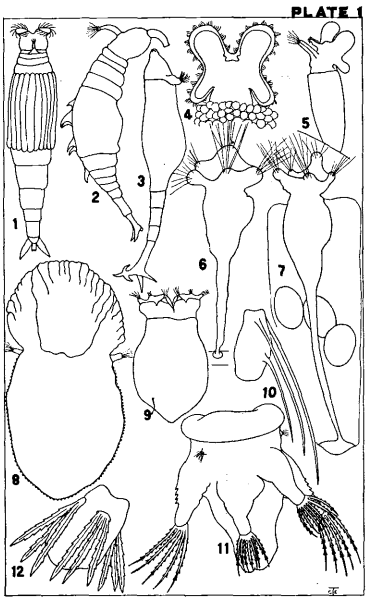
PLATE 1
1
2
3
4
5
6
7
8
9
10
11
12

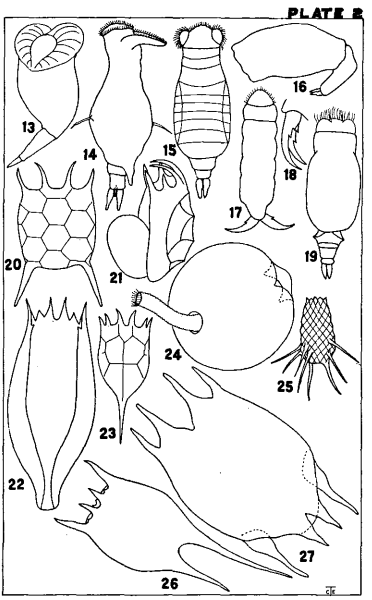
PLATE 2
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27

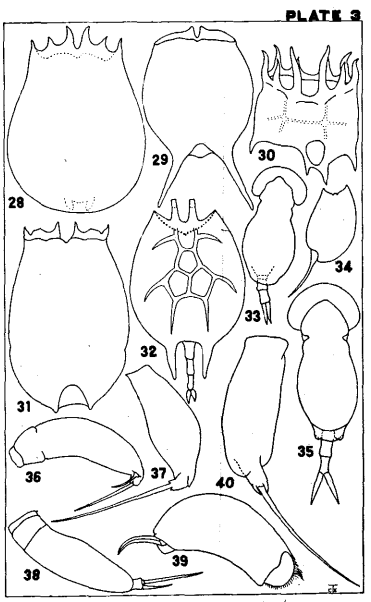
PLATE 3
28
29
30
31
32
33
34
35
36
37
38
39
40

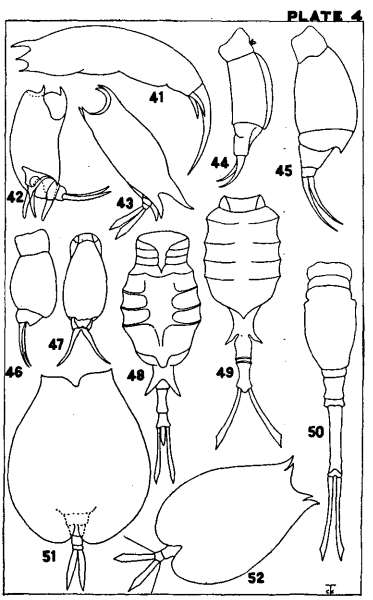
PLATE 4
41
42
43
44
45
46
47
48
49
50
51
52

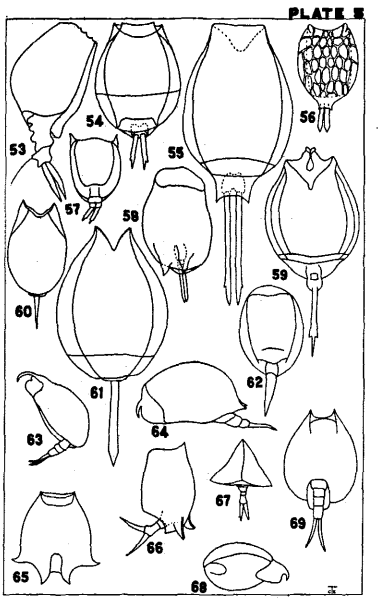

PLATE V.

53. *Euchlanis uniseta* Leydig..... × 100
54. *Cathypna luna* Ehr..... × 125
55. *Cathypna leontina* Turner..... × 125
56. *Distyla ohioensis* Herrick..... × 167
57. *Distyla gissensis* Eckstein..... × 167
58. *Distyla* sp..... × 167
59. *Monostyla quadridentata* Ehr..... × 125
60. *Monostyla lunaris* Ehr..... × 167
61. *Monostyla Bulla* Gosse..... × 167
62. *Monostyla* sp..... × 167
63. *Colurus grallator* Gosse..... × 167
64. *Colurus bicuspidatus* Ehr..... × 167
65. *Metopidia ehrenbergii* Perty, ventral view..... × 167
66. Same, side view..... × 167
67. *Metopidia oxysternon* Gosse, rear view..... × 167
68. Same, ventral view..... × 167
69. *Metopidia solidus* Gosse..... × 167